IN THE CLAIMS

1. (CURRENTLY AMENDED) A flexispline motor comprising a [[~~cylindraceous~~]] cylindrical electromagnetic core, a flexispline and rotatable hub [[~~means~~]] mounted on a [[~~suitable~~]] support [[~~means in a working relationship~~]], said electromagnetic core being provided with a set of [[~~suitable~~]] windings to produce a commutated [[~~and controlled~~]] rotating magnetic field, a flexispline comprising a disc portion and hollow cylindrical portion [[~~integrally~~]] joined together to form an open cylindrical shape having at least one open end [[~~the general shape of an open ended tin can~~]] mounted on said support [[~~means~~]] in such a manner that it encompasses said [[~~magnetic~~]] electromagnetic core and is in a coaxial relationship with said electromagnetic core, said cylindrical shape [[~~cylindrically shaped~~]] portion of said flexispline comprising an elastically deformable magnetic material and being in a closely spaced relationship with said core but not touching said core in an unexcited magnetic state, said flexispline having toothed external gears [[~~gear means~~]] formed thereon in the form of an elastically deformable band encircling an exterior surface of the cylindrical shape [[~~the exterior surface of said cylinder generally~~]] adjacent the at least one open end [[~~near the open end~~]] of said flexispline, the hub [[~~means~~]] mounted on said support [[~~means~~]] adjacent to and coaxially with said flexispline, said hub having complementary internal toothed ring gear means overlying but closely spaced with said toothed external gears [[~~gear means~~]] on said flexispline, wherein said open end of said flexispline and said toothed external gears [[~~gear means~~]] being distorted in the presence of a magnetic field in said electromagnetic core to form a [[~~general~~]] multilobed shape such that said toothed external gears [[~~gear means~~]] on said flexispline exhibits toothed engagement with said internal toothed ring gear on said hub at the protruding lobes on [[~~the~~]] a distorted flexispline shape [[~~so~~]] formed by the magnetic field.

2. (CURRENTLY AMENDED) A flexispline motor comprising a [[~~cylindraceous~~]] cylindrical electromagnetic core, a flexispline and rotatable hub [[~~means~~]] mounted on a [[~~suitable~~]] support means [[~~in a working relationship~~]], said core being provided with a set of [[~~suitable~~]] windings configured to produce a commutated rotating magnetic field, a flexispline comprising a disc flange portion and hollow cylindrical portion integrally

joined together to form [[~~the general shape of~~]] an open ended cylinder portion having at least one open end [[~~tin can~~]] mounted on said support means in such a manner that it encompasses said electromagnetic core and is in a coaxial relationship with said core, said cylinder [[~~cylindrically shaped~~]] portion of said flexispline further comprising an elastically deformable magnetically permeable material and being in adjacent [[~~a closely spaced~~]] relationship with said core but not touching said core in an unexcited magnetic state, said flexispline having an elastically deformable toothed internal gear arrangement [[~~means~~]] formed thereon on the interior surface of said cylinder in the form of a band, near the open end of said cylinder portion of the flexispline, hub means mounted on said support means adjacent to and extending coaxially with said flexispline, said hub having complementary external gear teeth [~~toothed gear means~~]] formed thereon [[~~at one end thereof~~]], said complementary external gear teeth [[~~gear means~~]] being encircled by said elastically deformable toothed internal ring gear means of said flexispline, said complementary external gear teeth [[~~gear means~~]] and said internal ring gear being [[~~in closely spaced relationship~~]] adjacent to, but not touching in an unenergized magnetic state, wherein said [[~~internal ring gear~~]] flexispline [[~~being~~]] is distorted upon the presence of a magnetic field in said core to assume a multilobed shape and contact said ring gear at [[~~the~~]] protruding lobes of the multilobed shape so formed.

3. (CURRENTLY AMENDED) A flexispline motor as claimed in claim 1 [[~~1~~]] wherein said cylinder portion of the flexispline is overwound or shrunk-fit with a magnetically permeable tape or [[~~as a helix of a~~]] magnetically permeable wire material with locked in radial stress or pressure.

4. (CURRENTLY AMENDED) A flexispline motor as claimed in claim 2 wherein said flexispline is overwound or shrunk-fit with a magnetically permeable tape or [[~~as a helix of a~~]] of a magnetic wire material [[~~with~~]] providing locked in radial stress or pressure.

5. (CURRENTLY AMENDED) A flexispline motor comprising a base, a hollow post affixed to said base, a [[~~cylindraceous~~]] cylindrical electromagnetic core and a flexispline mounted on said base and said hollow post so as to [[~~enjoy~~]] effect a coaxial working

relationship with said hollow post, said electromagnetic core being provided with a set of [[~~suitable~~]] windings to produce a commutated [[~~and controlled~~]] rotating magnetic field, [[~~a~~]] the flexispline comprising a disc flange portion and hollow cylindrical portion integrally joined together to form the general shape of an open ended cylindrical element with at least one open end [[~~"tin can.~~]] mounted on said support means [[~~in such a manner that it~~]] so that the hollow cylindrical element encompasses said [[~~magnetic~~]] electromagnetic core and is in a coaxial relationship with said electromagnetic core, said cylindrically shaped portion of said flexispline comprising an elastically deformable magnetically permeable material and being in [[~~a closely spaced~~]] an adjacent relationship with said electromagnetic core but not touching said electromagnetic core in an unexcited magnetic state, said flexispline having externally toothed gears [[~~external gear means~~]] gear teeth formed thereon in the form of an elastically deformable band encircling [[~~the~~]] an exterior surface of said cylinder near [[~~the~~]] an open end of said flexispline, a shaft [[~~means~~]] mounted within said hollow post [[~~means~~]] on [[~~suitable~~]] bearings for rotation within said hollow post and passing through said base, said shaft being accessible on both ends of the shaft by way of shaft extensions, said shaft [[~~means~~]] being connected to a disc shaped hub at an end opposite said base, a ring gear [[~~means~~]] carried by said hub in a working relationship with said flexispline, said ring gear [[~~means~~]] and the flexispline externally toothed gears [[~~gear. means~~]] having gear teeth that will mesh, but are differ in number, wherein said open end of said flexispline and said ring gear [[~~means~~]] being distorted in the presence of a magnetic field in said core to form a general multilobed shape such that [[~~said gear means on said~~]] the flexispline gear teeth exhibit [[~~exhibits~~]] toothed engagement with said ring gear on said hub at [[~~the~~]] protruding lobes on the multilobed shape so formed by the magnetic field.

6. (CURRENTLY AMENDED) A flexispline motor comprising a base, [[~~cylindraceous,~~]] cylindrical electromagnetic core, a hollow post, a flexispline and rotatable hub [[~~means~~]] mounted on a [[~~suitable~~]] shaft at a point intermediate [[~~its~~]] ends of the shaft, said shaft [[~~means~~]] passing within said hollow post and [[~~controlled~~]] magnetic core and the shaft being supported on [[~~suitable bearing means~~]] bearings, said shaft [[~~means~~]] being accessible at both ends of said flexispline motor, said core being

provided with a set of [[~~suitable~~]] windings to produce a rotating magnetic field, [[~~a~~]] the flexispline comprising a disc flange portion and hollow cylindrical portion integrally joined together to form [[~~the general shape of an open ended tin can~~]] an open cylinder element having at least one open end mounted on a support [[~~means in such a manner that it encompasses~~]] to encompass said electromagnetic core and is in a coaxial relationship with said electromagnetic core, said [[~~cylindrically shaped~~]] hollow cylindrical portion of said flexispline comprising an elastically deformable magnetically permeable material [[~~and being in a closely spaced~~]] in adjacent relationship with and encompassing said electromagnetic core but not touching said electromagnetic core in an unexcited magnetic state, said flexispline having an elastically deformable [[~~toothed~~]] internal toothed gear [[~~means~~]] formed thereon on [[~~the~~]] an interior surface of said cylinder [[~~in the form of~~]] as a band, near the open end of said flexispline, a hub [[~~means~~]] carrying a ring gear [[~~means~~]] mounted within said flexispline and extending coaxially with said flexispline, said ring gear [[~~means~~]] being encircled by said elastically deformable [[~~toothed~~]] internal toothed ring gear [[~~means~~]] of said flexispline, said ring gear [[~~means~~]] and said internal toothed ring gear having teeth which will mesh but differ in number and are adjacent [[~~being in closely spaced relationship~~]], but are not touching in an unenergized magnetic state, wherein said internal toothed gear means [[~~being~~]] are distorted upon the presence of a magnetic field in said electromagnetic core to assume an multilobed shape and contact said ring gear at [[~~the~~]] protruding lobes of the multilobed shape so formed by the magnetic field.

7. (CURRENTLY AMENDED) A flexispline motor as claimed in claim 5 wherein said flexispline is overwound with a magnetically permeable tape or [[~~with a helix of a~~]] magnetically permeable wire material with locked in radial pressure or stress.

8. (CURRENTLY AMENDED) A flexispline motor as claimed in claim 6 wherein said flexispline is overwound with a magnetically permeable tape or [[~~with a helix of a~~]] magnetically permeable wire material with locked in radial pressure or stress.

9. (CURRENTLY AMENDED) An electromagnetic core for a flexispline comprising a

magnetically permeable core of a hub and spoke shaped construction, said core comprising stacked laminations to form a unitary structure having [[~~an even~~]] a number of radially spaced rectangular profile poles surrounding said hub, a winding fitted to each pole to produce a magnetic field in each pole, and the windings on each [[~~pair of opposing~~]] groupf of complementary poles on said hub being energized to produce magnetic fields which fields produce a multilobal flexispline distortion of two lobe or three lobe shape [[~~oppose each other~~]].

10. (CURRENTLY AMENDED) An electromagnetic core as claimed in claim 9 wherein the coils of each [[~~pair of opposing~~]] group of poles on said hub are connected in a series or parallel relationship.

11. (CURRENTLY AMENDED) An electromagnetic core in a structure [[~~for the production~~]] of a continuous wave deflection in a magnetically permeable flexispline member in a flexispline motor comprising, a series of stacked laminations stacked [[~~together~~]] to form a unitary core having a hub and spoke configuration, such that [[~~an even~~]] a number of rectangular profile core legs extend radially from said core hub at evenly spaced intervals, each leg [[~~being supplied with suitable coil means~~]] containing electromagnetic coils, each electromagnetic coil being sequentially energized from a [[~~suitable~~]] source of [[~~to~~]] electrical energy to produce a rotating electrical field in said electromagnetic core, and wherein [[~~the~~]] magnetic forces produced in each [[~~opposing pair~~]] complementary group of core legs is in a bucking relationship.

12. (CURRENTLY AMENDED) An electromagnetic core as claimed in claim 13 wherein [[~~the number of~~]] eight core legs are present [[~~is eight~~]], and the source of electrical energy is a four phase source having frequency, amplitude, and commutation-control of [[~~the~~]] output current wave forms, and the electromagnetic coils on each pair of opposing pairs of core legs is connected to said source of electrical energy in a series or parallel bucking relationship.

13. (CURRENTLY AMENDED) An electromagnetic core [[~~for~~]] in a flexispline motor

said core comprising a [[~~circular~~]] cylindrical configuration and having a series of radially extending rectangular profile teeth protruding from said core, said teeth having teeth of variable widths arranged in a regular sequence around the circumference of said core separated by slots of uniform width.

14. (CURRENTLY AMENDED) An electromagnetic core [[~~for~~]] in a flexispline motor comprising [[~~a stack of~~]] magnetically permeable laminations [[~~arranged to form a substantially~~]] forming a cylindrical core, said electromagnetic core having a series of projecting rectangular shaped teeth having two distinct widths separated by slots of equal width, and wherein teeth of lesser width are double the number of the teeth of wider width.

15. (ORIGINAL) A winding system for the electromagnetic core of claim 14 wherein each core tooth of wider width is provided with a first coil and a secondary coil is made to encircle said first coil plus the teeth of lesser width on either side of said core tooth of wider width.

16. (CURRENTLY AMENDED) A flexispline motor comprising an electromagnetic core, a flexispline sleeve, and a gear device wherein: said electromagnetic core is mounted on a stationary member and has [[~~the general shape of~~]] a cylinder shape having a splined exterior surface, said electromagnetic core having a set of windings incorporated therein to produce a rotating magnetic field in said electromagnetic core, a magnetically permeable sleeve mounted coaxially on said electromagnetic core, said sleeve having the shape of a hollow cylinder having an interior cylindrical [[~~cylindraceous~~]] surface [[~~having a spline~~]] embodying splines formed in said interior surface to mate with said splined exterior surface of said electromagnetic core in a sliding relationship which permits flexing of the splined exterior surface in a radial direction and transfer of torque but which does not permit said sleeve to move in a circumferential direction, said sleeve having an overlapping end extending beyond said electromagnetic core, said overlapping end of said sleeve having an internal flexible gear formed therein having a predetermined tooth form of constant pitch, a driven gear being mounted within said overlapping end of said sleeve in a coaxial relationship with said electromagnetic core and said sleeve, wherein said driven gear having teeth which mesh with said internal flexible gear and being mounted to permit rotation about

a central axis of said sleeve and electromagnetic core, said gear and said sleeve being in a non contacting relationship in the absence of a magnetic field in said electromagnetic core, wherein said sleeve [[~~undergoing~~]] undergoes a cyclical elastic deformation in the presence of a rotating magnetic field in said electromagnetic core to form a multilobed shape such that the internal gear formed in said sleeve contacts said driven gear in the presence of a rotating magnetic field in said electromagnetic core, such that [[~~the~~]] protruding [[~~ends~~]] lobes of the multilobed shape so formed by said sleeve and internal gear contact said driven gear, to cause said driven gear to rotate.

17. (CURRENTLY AMENDED) A flexispline motor comprising a magnetically permeable flexispline having [[~~the general shape of an open tin can, having~~]] an open ended cylindrical shape having at least one open end with a predetermined radius r, said flexispline having a set of gear teeth incorporated in a predetermined surface of said flexispline near the at least one open end of said flexispline, said flexispline being mounted coaxially within and between [[~~a pair~~]] an annulus of substantially cylindrically extending magnetic core assemblies comprising:

a) [[;]] an inner electromagnetic core assembly having a series of salient poles whose number is a multiple of three protruding therefrom so that the pole tips of said inner core assembly lie in the locus of a circle having a radius r1, and

b) an outer electromagnetic core assembly having a series of inwardly extending poles equal in number to the poles on said inner core assembly, such that each pole on said outer core assembly is spaced directly opposite from a pole on said inner core assembly, the pole tips of said outer core assembly lie in the locus of a circle having radius r2 such that r2 is greater than r is greater than r1, and winding elements [[~~means~~]] on said cores to establish two rotating fields in space quadrature.

18. (CURRENTLY AMENDED) A prime-mover apparatus, for converting supplied electrical energy into rotary mechanical motion of a rotor with respect to a stator, about a drive-axis, and/or converting supplied mechanical motion into produced electrical energy, wherein the stator comprises:

a) an elastically deformable magnetically permeable flexispline overwound with [[~~similar~~]] wire or metallic tape and/or shrink-fit collar embodying a locked in radial compressive stress or pressure;

b) an annulus having gear teeth, which form a stator-drive-gear; the annulus being [[~~is~~]] sufficiently elastic as to be deformable radially, being deformable in the sense that the annulus takes on a lobed configuration, upon appropriate radially-directed magnetic forces being applied to the annulus;

c) the flexispline [[~~rotor is provided with~~]] having a number RGT of gear teeth, which form a rotor-drive-gear;

d) the rotor-drive-gear is a solid structure, not deformable to a lobed configuration;

e) the rotor-drive-gear is concentric with the stator-drive-gear,

f) the number SGT of teeth on the stator-drive-gear is different from the number RGT of teeth on the rotor-drive-gear;

g) the stator-drive-gear and the rotor-drive-gear are so configured that, when the [[~~thin-walled annulus~~]] flexispline of the stator has electromagnetically deformed to the lobed configuration, portions of the stator-drive-gear teeth corresponding to the induced lobes of the [[~~annulus~~]] flexispline move radially into meshing engagement with teeth of the rotor-drive-gear;

h) the stator includes N electrical coils wound around stator core teeth of rectangular profile in axial planform and[[~~,~~]] located at respective coil-orientations, around the drive-axis; in a manner such as to minimise the length of the magnetic flux flow path. the coils are so structured, commutated, and arranged that, when energised with electricity, the coils create poles which exert respective radially-directed magnetic forces in a programmed sequential manner[[~~,~~]];

i) the arrangement of the apparatus is such that the said radially-directed magnetic forces act upon the [[~~electrically~~]] electromagnetically deformed flexispline [[~~annulus~~]], and induce the flexispline [[~~annulus~~]] to deform into the [[~~lobed~~]] multilobed configuration;
the apparatus [[~~includes~~]] including a commutator[[~~, for~~]] receiving the supplied electrical energy, and [[for]] switching [[~~same~~]] supplied electrical energy to the coils, [[~~in a specialized manner~~]] thereby cyclically energising and de-energising the coils sequentially in a rotational pattern around the drive axis, with the unused [[~~engerminus~~]] energy minus [[~~some~~]] losses being returned to the energy source. the apparatus [[~~includes~~]] including a cyclic-operator, [[~~, for~~]]

operating the commutator to energize and de-energize [[~~for energising and de-energising~~]] the coils sequentially in [[~~an optimal~~]] a rotational pattern, around the drive-axis;

the arrangement of the apparatus is such that operating the commutator in the [[~~said~~]] rotational [[~~pattern~~]] pattern [[~~is effective to drive~~]] drives the lobed configuration of the elastic stator [[~~annulus~~]] flexispline to rotate around the drive-axis, its speed of rotation being a lobe-rotate-speed LRS rpm; and

whereby output from the rotor-drive-gear is driven to rotate at a speed of LRS *(SGT-RGT)/SGT rpm[[~~;~~

~~the electromagnetic core teeth on which stator field winding is applied, embody a rectangular profile in axial planform~~]].

19. (CANCELLED)

20. (NEW) A flexispline motor comprising:

a cylindrical electromagnetic core provided with a set of windings to produce a commutated and controlled rotating magnetic field,

a flexispline and rotatable hub mounted on a support,

a cylindrical flexispline comprising a disc portion and cylindrical portion mounted on the support to encompass the magnetic core and be in coaxial relationship with the core,

the flexispline comprising an elastically deformable magnetic material and being adjacent to the core but not touching said core in an unexcited magnetic state,

the flexispline having toothed external gears or external gears formed thereon in an elastically deformable band encircling an exterior surface or internal surface, espectively, of the flexispline adjacent an open end of the flexispline,

the hub being mounted on the support adjacent to and coaxially with the flexispline, the hub having complementary ring gears overlying or underlying, respectively, said toothed external gears or internal gears on the flexispline, wherein the open end of said flexispline and the toothed external gears or internal gears are distorted in the presence of a magnetic field in the electromagnetic core to form a shape such that the external toothed gears or internal gears on said flexispline provide toothed engagement with the ring gear.